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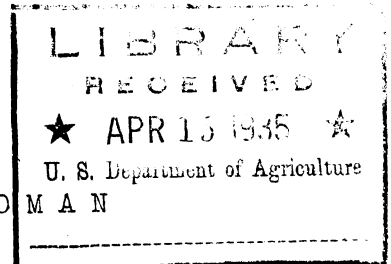
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THE EXTENSION ANIMAL HUSBANDMAN

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C. D. Lowe, Senior Extension Animal Husbandman,  
K. F. Warner, Animal Husbandman in Meat Extension.



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## WHITHER IN ANIMAL BREEDING?

By Dr. Hugh C. McPhee, Chief, Animal Husbandry Division,  
Bureau of Animal Industry, U.S. Department of Agriculture.

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During the last few years the livestock industry of this country has suffered heavily from the effects of drought and certain adverse economic conditions. These unavoidable disturbances accompanied by wholesale elimination in several important classes of domestic animals, have reduced our livestock population to the lowest point in many years. The curtailment alone could have been an effective step in the direction of breeding improvement had it been possible to make an evaluation of breeding qualities and to have retained the genetically superior individuals for use in producing future generations. Naturally this was impossible under the stress of circumstances, and there is no accurate record of the degree of culling that could be practiced, nor of valuable germ plasm which may have been discarded during this extensive program of retrenchment. It is probable that the general average of all livestock was improved for the moment by the elimination of obvious culls, and that also many animals of great potential value were sacrificed by the hardest hit breeders.

Whatever the result may have been it is vitally important that the gains we made be retained and that further improvement be brought about by the application of sound principles of livestock breeding. The point is of particular importance in view of a probable expansion in livestock numbers.

It is a well-known fact that the craft of animal breeding has been a larger factor than the science of animal breeding in the improvement of the livestock of the country. However, it does not necessarily follow that the science of genetics does not hold forth much promise of aiding the livestock breeder of the future. It has already rendered a great service to the breeder by showing that individual animals are not units of inheritance, but groups of independent characters. It has demonstrated how such independent units can be taken from one animal and combined with those of another. It has given us a new understanding of prepotency and has shown that a sire of hybrid origin may be as homozygous, and breed as true as a purebred sire.

If there is any one message which should go out to our livestock workers at this time it is to stress the need for further

research along the lines of breeding, feeding, and management in order that better livestock may be more cheaply produced. It seems like stale advice on an old subject but it is not. We all realize that much of the pioneering effort dealing with meat-producing animals that has been expended during the last 20 years was really demonstration work. Demonstration work has a decided place in our improvement program but when demonstration is mistaken for research, progress is apt to proceed in a circle.

The meat-producing animal is a biological organism and research with that organism must take that fact into consideration and deal with the fundamental biological problems involved. Many of these problems are so complex and difficult to handle that even the best of our technically trained biologists have not progressed very far in a study of them, in domestic animals. We must be broad minded enough to recognize that many of the problems are quite beyond the ability of the general animal husbandman to solve and that close cooperation between the pure scientist and the husbandman is essential for progress.

There is a distinct need in our livestock set-up for more trained workers who recognize the limitations of various experimental procedures and who conduct their work in a well-controlled manner that allows significant results to be obtained. An appreciation of the basic problems and the employment of adequate methods for their solution are the really important things. Whether the experimenter will use a beef animal or a rabbit for experimental material is a minor matter so long as he is able to hold constant other variables than the one being studied. Decisive results must be obtained if the investigation is to be a stepping stone of progress in the research program.

In the breeding phase of animal husbandry research on meat-producing animals, such as beef cattle, sheep, and swine, relatively little has been done in the past and only a small amount of experimental work of a fundamental nature is being carried on in this country at the present time. Our methods of breeding for improvement of these animals have changed little in several decades and still are based on show-ring performance and evaluations of the individual by the human eye. This has remained the method in spite of the fact that the science of genetics has clearly shown that not only is the appearance of the individual not necessarily an indication of breeding worth but also that evaluations of the complex characters of economic value in livestock cannot be made accurately from the appearance of the individual.

There is a distinct need for developing closely bred groups and for more attention to accurate measures of the various characters of economic importance. The first step is to locate strains which possess heredity for a satisfactory expression of some of these characters such as fertility, economy of gain, and quality of product. Obviously this is not an easy task but these are the things which affect very materially the profits of any livestock enterprise and efforts must be made gradually to improve the various breeds in these respects by application of better breeding, feeding, and management practices including the development of improved pastures. Work of this nature has already been initiated by the Department in cooperation with several State experiment stations.

Recently a distinct forward step was taken by Secretary Wallace when he appointed a Committee on the Cooperative Survey of Plant and Animal Breeding in this country. This committee has sent out questionnaires to the State experiment stations for the purpose of obtaining information necessary to locate possible sources of superior germ plasm in the various breeds and classes of farm animals and in the important crop plants. Although the study is, in its early stage, being confined to college and experiment stations it is planned later to contact leading breeders for similar information. The preliminary returns from these questionnaires reveal a disappointing situation in regard to the number of herds and flocks upon which there is sufficient information to demonstrate that any significant progress has been made toward the development of superior breeding stock. One of the important reasons for this condition is undoubtedly the lack of finances to carry on breeding research work with such expensive animals as beef cattle, swine, and sheep. The really important thing which is being indicated by the survey is that apparently any superior germ plasm which may exist among beef cattle, sheep, swine, and horses exists without definite proof or without recorded knowledge of its superiority.

Few if any breeders maintain records of the kind required to show the improvements which they may have effected in the concentration of superior germ plasm. It probably will be necessary, therefore, to make some tests and do some carefully controlled breeding with the best animals located by the survey before we are really squared away for a start in a program for further improvement. In the meantime let us hope that there will be a further awakening to the need of identifying males and females of superior breeding worth that their presence may become known to the world at large. I am confident that some of our existing breed tradition, pedigree systems, and selfish breed-promotion activities, will give way to a broader viewpoint and a fuller appreciation of the basic problems with which the breeding program must be concerned.

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## SOME THOUGHTS ON EXTENSION METHODS

By A. B. Graham,  
Extension Service, U. S. Department of Agriculture.

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For more than 20 years the Department of Agriculture and the States have been working together in the extension field. Prior to that time for at least 10 more years, many of the States themselves had been engaged in attempts to improve practices on the farm and in the home through extension effort. That great good has been accomplished no informed person will deny, but have we taken full advantage of our opportunities to influence all groups represented in our constituency, is the question I wish to raise.

Based on the theory that all persons who have reached their majority are voters and taxpayers, they should be beneficiaries of extension activities. It seems clear to me that the only way to reach many of these people effectively is to plan our programs with special reference to the different social and intellectual levels represented by them.

Because of the fact that the great mass of people are eye-minded, it follows that demonstrations should be our chief but not exclusive teaching tool. It must be kept in mind too that not everyone is going to understand all of the technical reasons for certain procedures but yet it is necessary to appeal to the intelligence of those who can comprehend. It is far better that we influence the acceptance of a better practice by imitation rather than to allow the continuation of an inefficient practice.

Our help, in whatever form it may be offered, must be repeated in many different ways, consequently a variety of means and agencies is needed to carry the information to those we aim to aid. Ordinarily we trust to the spread of influence from those who are the more easily taught to those who are less easily taught and to some degree that is what occurs, but in my belief not to the extent possible if we plan our work with greater effort directly to influence the more inert group. It is necessary to keep in mind that there are social stratifications and that it is possible to secure among the lower groups those who may become successful leaders in their own caste, if we dare call it such.

So far reference has been more or less confined to direct

methods for reaching people. There is also an indirect method which is quite as successful. In some States extension specialists have extended their teachings through various types of commercial agencies, for example: Lumber dealers, who carried their plans for buildings and other farm equipment, feed dealers, druggists, implement dealers, seed firms, etc. In such instances we have augmented our "sales" force and extended our teachings. Is it not desirable for us to take advantage of such opportunities without of course entering into any entangling alliances with such agencies that would react against constructive extension work.

Above all things we should begin where people are and not attempt to establish a lot of new habits or try to make them jump an indefinite number of hurdles to arrive at our ideal. Plans of work for adults not of the higher intelligence levels should include the use that can be made of various teaching tools and provide sufficient alternatives to reach those who may have the least-promising possibilities. Every subject-matter specialist should include a plan for the work of youths as well as of those younger in order that desirable habits may be established early.

To my mind, much less time should be devoted to all sorts of contests which pit boys and girls of different degrees of mentality against each other. Often we array people living on different soil types and under different climatic and financial conditions against one another. It should be that each boy or girl stands more or less on his own and that he competes this year with himself of last year, and not alone against some other one whose ancestry transmitted a different degree of intelligence. Our plans should be so laid that the great majority of the boys and girls are successful in terms of rivalry with themselves, for success begets success and failure begets failure.

If we are to reach the masses of people, idealism, fine as it is, should in many cases be laid aside for those alternatives which will enable us to make a start with those who too often are found outside the extension "family."

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I know of no better means of reconstructing our agriculture on a thoroughly sound and permanently desirable basis than to make as its foundation the family-sized, owner-operated farm.

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--Secretary Wallace

RESULTS OF LIVESTOCK EXTENSION PROGRAM IN  
VIRGINIA, 1934

By Kenneth E. Litton, Asst. Extension Animal Husbandman,  
Virginia Polytechnic Institute.

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Extension work in animal husbandry during 1934 was largely confined to the four projects of better sires, market-lamb improvement, livestock marketing, and the corn-hog adjustment program. The better-sires and market-lamb-improvement projects have been effective in raising the quality of meat animals produced for market and the marketing project has met the needs of producers for more efficient means of selling their products. The corn-hog program, which required a considerable amount of the specialists' time during 1934 is a means of fitting production to demand through cooperation with corn-hog farmers elsewhere in the country.

The better-sires project has for its object the replacement of sires of inferior breeding and individuality with good purebreds. Twenty-one counties were enrolled in the project last year with 19 reporting completions. The 19 counties reported a total replacement of 476 sires made up of 162 beef bulls, 300 rams, and 14 boars.

To aid in the replacement of sires, one bull sale was held, with a total of 12 bulls sold, and 10 ram sales in which 205 rams were sold.

The best record for the year was turned in by County Agent George W. Litton of Tazewell County, who replaced a total of 108 sires. This was Mr. Litton's second year as county agent in Tazewell County. Last year he placed 131 sires in the county. Practically no better-sires work had been conducted in the county previous to that time.

The market-lamb-improvement project included the docking and castration of lambs, stomach-worm treatment, and creep feeding. In the 25 counties enrolled and reporting there were 151,940 lambs docked and castrated in 1934 as compared to 142,890 for 1933, in spite of the fact that the lamb crop was considerably smaller in 1934. The value of the practice, conservatively estimated at 50 cents per head, was \$75,970 as compared to \$72,440 in 1933.

The same counties reported 130,184 sheep treated for stomach worms in 1934 as compared to 124,004 for 1933. Estimating the value of the practice at \$1.00 per head gives a value of \$130,184 in 1934



as compared with \$124,004 in 1933. Very few sheep were treated for stomach worms in Virginia until the practice was demonstrated by animal husbandry specialists and county agents about 12 years ago. An effective means of carrying out this program has been the preparation of mimeographed cards in the office of the extension specialists, addressed and sent out to county agents to be signed and mailed by them. A total of 4,677 cards were mailed each month during the season.

It was impossible to get an accurate report on the creep-feeding phase of the project, but careful estimates indicate that a higher percentage of Virginia lambs were creep-fed in 1934 than in any previous year.

The marketing project has not only proved to be a means of increasing returns from livestock products to producers, but it is also the basis of a sound production program. Producers become much more interested in the production of quality products when they are paid for them in proportion to what they actually are worth on the terminal market.

The marketing project is based on the establishment of local units which handle the products of stockmen through regional selling agencies. There were 43 counties that sold wool cooperatively, handling 699,144 pounds of wool for 3,697 growers in 1934. This is approximately one-half of the wool produced in Virginia. The amount handled was somewhat less than in 1933, part of which is accounted for by the fleeces' averaging about one pound less than for 1933. The United Wool Growers' Association was the selling agency for most of the county pools.

There were 28 counties handling cooperative shipments of livestock in 1934, represented by 1,990 producers who shipped 64,173 head. The Eastern Livestock Cooperative Marketing Association, operating at Baltimore, Jersey City and Lancaster was the selling agency for the local cooperatives.

In addition to assisting with livestock marketing units, we also cooperated in the lamb-grading program. During the 1934 season 24,409 "red circle" (Good to Choice) lambs were shipped to the terminal markets, the average price being \$8.48 as compared to 14,015 "red circles" in 1933 and a price of \$8.65. In the same shipments there were 8,691 lambs below the red-circle standard. Grading is helping to establish a reputation for Virginia lambs, is keeping many unfinished lambs off the market, and has been particularly effective in teaching producers what the market wants and will pay best prices for.

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# A.A.A. CATTLE PURCHASE REPORT

The following table contains the data reported as of March 4, 1935, by the Agricultural Adjustment Administration regarding cattle purchased by the Government as an emergency relief measure. With the exception of Illinois and Florida, all figures given are subject to correction as final official reports are received from the States.

Cattle Purchase Report						
State	No. of farms selling	Total cattle inventory of farms selling	Total reported purchased	Total cattle condemned	Percentage purchase condemned	Average price per head
Ariz.	2,729	531,081	101,352	18,157	17.9	\$ 14.29
Ark.	41,607	523,503	136,064	39,532	29.1	11.60
Calif.	1,397	147,414	19,784	1,595	8.1	15.45
Colo.	21,364	1,102,360	289,241	39,008	13.6	14.32
Fla.	207	160,900	16,335	1,400	8.6	13.72
Idaho	5,457	198,679	41,754	7,280	17.5	12.50
Ill.	1,300	20,352	2,587	87	3.3	16.49
Iowa	5,810	123,358	23,076	2,042	8.8	14.16
Kans.	44,946	1,651,271	521,249	14,121	2.7	14.44
La.	18,312	241,595	56,921	28,830	50.6	9.95
Minn.	45,433	905,088	263,422	7,994	3.0	14.63
Mo.	92,276	1,520,568	513,019	18,594	3.6	14.62
Mont.	15,787	758,781	349,824	8,808	2.5	14.35
Nebr.	64,630	3,039,384	480,784	15,619	3.3	13.73
Nev.	1,019	276,243	36,323	1,587	4.4	15.66
N. M.	17,749	1,970,521	545,630	173,447	31.8	13.40
N. D.	67,558	1,888,401	977,120	50,313	5.1	14.09
Okla.	41,266	1,256,756	506,199	210,640	41.6	11.41
Ore.	1,082	123,406	12,496	379	3.0	14.77
S. D.	48,284	1,429,604	913,910	87,561	9.6	14.34
Texas	149,796	6,980,816	2,012,262	684,777	34.0	12.20
Utah	16,889	449,529	126,370	34,551	27.3	13.92
Wis.	16,039	326,276	56,831	1,466	2.6	15.22
Wyo.	7,823	862,377	285,227	37,792	13.2	14.65
Total	728,760	26,498,263	8,287,780	1,485,580	17.9	\$ 13.49

## LIVESTOCK IN RURAL REHABILITATION

by W. T. Bennett, Regional Supervisor,  
Agricultural Rehabilitation Section,  
Division of Program Planning,  
Agricultural Adjustment Administration.

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At the present time in rural United States (including towns with less than 5,000 inhabitants), there are approximately 1,200,000 families on relief. About half of these are farm families. Opinion may vary as to the responsible factor for this situation but a majority would agree that many of these families would not be in their present plight had they followed a self-supporting system of agriculture in the past. Vegetable gardens, livestock for milk, meat, power, and maintaining soil fertility and similar things do contribute to the independence of those who live on the land. If full advantage is taken of opportunities to have such, the amount of cash income needed to make possible reasonable standards of living is not great.

Rural rehabilitation work was inaugurated for the purpose of helping these socially and economically stranded families and in giving those among them, who are worthy, an opportunity to become self-supporting and if possible, home-owning, self-respecting citizens. Since there is no substitute for livestock in a balanced farming program, we necessarily are thinking and acting in terms of work animals needed to grow crops, cattle for milk, beef, and veal, hogs for pork and lard, and poultry for eggs and meat, in the rehabilitation of these people.

Our historical studies of relief clients with rare exception have shown that their predicament was directly the result of a farming system that did not include food crops and livestock products. The sections of greatest demand for help and of heaviest relief rolls are the sections where there is the greatest shortage of livestock. Because of this deficiency, it has been necessary for the rehabilitation corporation to go into livestock areas and purchase animals needed for establishing the new farming order. Since the majority of families accepted for rural rehabilitation have never had sufficient milk for home consumption, it is our policy to furnish a cow to such families just as soon as they are in position to take care of and feed her. Many families were supplied with pigs last summer. These pigs were fed out during the fall and killed for meat during the winter and have provided the first home-raised and cured meat some of such families have ever enjoyed.

While clients who can qualify for subsistence herds of beef cattle are relatively few, one southern State has provided over 3,000 head of beef cattle in its rural rehabilitation program. It is expected that those who have received these cattle will be among the first to repay their obligations.

Practically all rehabilitants in the rural areas should be able to take care of a farm flock of poultry from which eggs and meat for family use can be supplied.

The heaviest purchases and importations of livestock for rehabilitation uses have been of work stock - mostly mules and horses, although many work oxen have been provided.

These rehabilitation families, whether living on individual farms, in groups on plantations, or in rural industrial communities are supplied with the type and kind of work animal that the supervisor feels will be of greatest help to them. Some get good young mules, others older ones and some are supplied with steers. Last year one State used 3,500 steers in its program. Many of the clients who got steers last year are able this year to purchase mules to replace the steers.

In many cases organized rural industrial communities will operate a cooperative dairy and where lands are available beef herds will be kept on the same basis. In some cases hogs will be grown by the individual family while in others community piggeries will be operated. Poultry will be handled on the community basis in some cases.

Each client included in the program is given the opportunity to gain independence eventually and is assisted in that direction by being supplied with needed capital goods, materials, and supplies, for all of which the client is expected to make repayment in cash, in kind, or in creative work projects.

When carried to completion it is hoped that the program will result in every deserving and ambitious client becoming a home owner on an individual or community basis and through his efforts as a farmer, supplemented where necessary by employment in a rural industry, be able to provide for his family and himself to the end that they may become happy and contented citizens.

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# A.A.A. SHEEP AND GOAT PURCHASE REPORT

The following table contains the data reported as of March 2, 1935, by the Agricultural Adjustment Administration regarding sheep and goats purchased by the government as a drought relief measure.

Sheep and Goat Purchase Report

State	Number of farms selling	Inventory farms selling		Number Purchased		Number Condemed	
		Ewes 1 yr. and older	Does 1 yr. and older	Ewes	Does	Ewes	Does
Ariz.	110	94,284	56,594	11,347	21,308	4,773	5,019
Ark.	14	298		95		25	
Calif.	162	255,534		24,151		6,804	
Colo.	1,288	1,355,082	3,753	210,196	3,493	106,653	3,461
Idaho	897	1,242,568		145,680		66,579	
Iowa	139	10,332		1,767		47	
Kansas	122	35,727	139	9,569	149	1,714	149
Minn.	494	25,049		6,544		168	
Mo.	589	31,359	684	7,547	468	62	43
Mont.	2,241	1,954,484		491,641		348,870	
Nebr.	237	69,162		24,677		3,664	
Nev.	303	764,582	1,248	99,076	364	9,914	315
N. M.	1,486	1,545,077	65,464	281,226	21,213	160,824	15,964
N. Dak.	2,662	283,610		84,025		21,937	
Okla.	20	5,629		2,270		2,270	
Ore.	548	888,866		163,510		96,588	
S. Dak.	2,465	616,335		153,784		72,754	
Texas	10,019	3,999,159	945,832	1,101,579	287,238	826,281	203,038
Utah	2,036	1,554,776	36,875	204,316	19,616	120,161	19,615
Wyoming	1,631	2,843,818	1,337	586,773	746	356,873	746
Totals	27,463	17,575,731	1,111,926	3,609,773	354,595	2,206,961	248,350

Purchases were confined to ewes and does 1 year of age and older. No goats other than Angoras were purchased.

The total number of sheep and goats owned by those who sold was reported as 27,578,150 head.

Seventy percent of the goats purchased were condemned as unfit for food and killed on the premises. Sixty-one percent of the sheep purchased likewise were condemned.

USING THE CORN-HOG PROGRAM  
TO ADVANCE HOG EXTENSION WORK

During the winter of 1932-33, corn and hog prices reached the lowest level in Alabama in many years. As a result of this condition hog producers in the State were either forced out of hog production or sustained heavy losses on their operations. The 1934 corn-hog program relieved this situation and since the removal of surplus supplies is no longer a problem it is our plan to use the 1935 corn-hog program to help develop a long-time hog-production program in Alabama. While less than 3,000 contracts were signed in 1934 in Alabama these were so distributed as to have from 5 to 50 members in almost all counties of the State, 51 counties out of 67 in the State participating. In our educational meetings held in February to explain the 1935 program emphasis was placed on the need of forming a permanent hog producer's association built around the emergency county association. The application signers are being given correct feeding and management suggestions and are being shown that inefficient methods of hog production can not be profitable even under the adjustment program. A goal of two tons of pork per year for every sow kept on the farm is being set up. More pork from fewer sows at lower cost is meeting the approval of the farmers attending these meetings. They can readily see that the present agricultural situation demands more efficient methods if they are to remain in the hog business.

A second series of meetings is being planned for the summer to note the progress of some of these demonstrations. All hog producers in the county will be invited by the county corn-hog association to attend these meetings and many counties are planning to have a barbecue to dispose of some of the surplus pork and to assure a good attendance.

A third meeting will be held late in the fall for a pork-cutting and curing demonstration. The county agent and livestock specialist will assist with the demonstration but it will be sponsored and arranged largely by the officers and members of the county corn-hog association.

Undoubtedly other features will be injected into the program by the association officers during the year. Pig-club work, use of pure-bred boars, and cooperative marketing can best be carried out through the efforts of an organized group of farmers who are particularly interested in this phase of agricultural development. The county agents readily approve such a plan as it affords them an opportunity to work with and through an organized group rather than with scattered individuals. The livestock specialist, who is also in charge of the State corn-hog program, will be given an opportunity to work with interested groups of farmers and should really accomplish more than has been possible any time in the last five years.

--F. W. Burns, Alabama Extension Animal Husbandman.

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## THE SCREW WORM AND WHAT TO DO ABOUT IT

By M. P. Jones, Extension Entomologist,  
United States Department of Agriculture.

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The damage which screw worms can cause to livestock was recognized by the Indians in the southwestern part of the United States long before the coming of the white man. For many years the United States Department of Agriculture and cooperating States worked on the control of the screw worm in that region. Sporadic outbreaks have occurred in the Mississippi delta area but the pest did not command public attention in the other Gulf Coast States until 1933. Although the introduction of T.E.R.A. cattle did aggravate the situation, the fact that flies were present before 1934 precludes the idea that they were introduced with such cattle.

It is impossible at this time to state how far north this pest may spread, even though it is considered a southern or warmer-climate insect. During 1934 it built up sufficient population to cause damage in the greater part of the Gulf Coast States. The isolated infestations which occurred in Iowa and Indiana in 1934 may be credited to cattle shipped from the old infested areas in the Southwest.

It was thought until recently that the screw worm bred in both dead and living animals but in 1933 discovery was made that two species had been confused and that one of these, Cochliomyia americana, is a true parasite of warm-blooded animals. It feeds primarily on living tissue and is first to enter the wound. The other species, Cochliomyia macellaria, feeds primarily on decaying tissue and often enters wounds after the C. americana. The adults of these two species resemble each other very closely. The general color is a greenish blue. The orange or reddish color of the face, from which is derived one of the common names, "red head," together with the three dark stripes along the back, distinguishes them from the other blow flies.

There are 4 stages, egg, larval, pupal, and adult, in the life cycle of Cochliomyia americana. The female deposits the eggs in masses of 30 to 100 upon moist wounds in animals. Ten to 12 hours later the young larvae emerge from the eggs and begin immediately to penetrate the tissues. After 5 to 7 days in the wound, the larvae have completed their growth and drop to the ground, where they burrow beneath the surface to pupate. The adults emerge

from the puparia 7 to 10 days later, during the summer months, but during cooler seasons the length of the pupal stage is greatly increased. The minimum period from deposition of eggs to emergence of adults is about 12 days; usually the period requires 14 to 15 days.

Mating of the adults occurs on about the third day after emergence from the pupal stage and eggs are laid any time after the fifth or sixth day. Generally, the life cycle is completed in three weeks.

The life cycle of C. macellaria is similar to that of C. americana except that the duration of the various stages is much shorter. •

Both species of screw worms together with several kinds of flesh flies may be found in the same wound.

When the wound is entered, the feeding of the maggots causes bleeding and pain. Without attention the wound is soon enlarged and attracts more flies. Finally the vital organs are exposed or the poisons from the extensive wounds are absorbed and the animal dies. Death is not the only yardstick for measuring losses because many survivors never return to normal. Fortunately the most practical method of combating the screw worm is in the field of livestock management and farm sanitation and fits in perfectly with recommended livestock production practices.

To meet the present serious screw-worm situation the following methods of control and prevention are recommended:

1. Perform Operations in Winter. Castration, branding, and dehorning should all be done in the winter when screw-worm flies are not present. Horn wounds are common locations of infestation.

2. Control Breeding. The breeding season should be so regulated that the young will be dropped during the winter. At the time of birth the mother and young animals are often attacked. Screened sheds may be necessary when it is desirable to have the young dropped during the screw-worm season.

3. Provide Screened Hospital Sheds where Necessary. In the extreme southern portion of the territory where the flies are moderately active all winter it may be necessary to construct screened-in hospital or farrowing pens.

4. Eliminate Hazards. Care should be taken to eliminate all



nails, snags, and other protuding objects from corrals, sheds, and other holding pens. Sharp stumps or stubble, loose barbed wire, and other objects are also responsible for many wounds and should be cleared away. Dogs should not be used for catching animals nor should sharp prodding poles be employed in handling them. Have harness and saddles carefully fitted so as to prevent injury.

5. Control Ticks. The Gulf Coast tick, which feeds in the ears of sheep, hogs, cattle, and other animals causes wounds which will lead to screw-worm infestations. The ticks can be killed with pine-tar oil, which should be applied lightly to the infested parts of the ears. Make sure that some oil reaches each tick. Repeated applications may be necessary.

6. Treat the Wounds.

- a. Carefully swab out the blood and serum with cotton.
- b. Kill the maggots and eggs by applying benzol (commercial grade, 90 percent). It may be applied to a wound from an oil can or syringe. Repeat the application in a few minutes to make sure that all worms are killed. A cotton plug soaked in benzol should be left in the wounds where pockets exist.
- c. Do not remove the maggots. This operation causes bleeding, which attracts more flies.
- d. Paint the wound and adjacent bloody areas with commercial pine-tar oil (specific gravity 1.065 to 1.085 dehydrated, acid free). Use only enough pine-tar oil to cover the wound and make it unattractive to the flies. Although pine-tar, either home-run or commercial, may repel some flies it is irritating and often does more harm than good.
- e. In the extreme southern portion of the territory where the flies are moderately active all winter it may be necessary to construct screened hospital sheds in which to keep the animals protected until the wounds are healed.

7. Examine Infested Animals Daily. It is desirable to keep infested animals in small pastures, pens, or stables where they are readily available. They should be examined and treated with pine-tar oil. If eggs or maggots are present, apply both benzol and pine-tar oil.

8. Burn the Dead Animals. It is a good practice to burn the carcasses of all animals dying from any cause. This practice will aid in preventing the spread of certain diseases and will eliminate breeding places for many flies.

9. Call a Veterinarian: In the case of severe infestations in valuable animals, a competent veterinarian should be called, especially if the wound is in a location difficult to treat.

Extermination of screw-worm flies is not anticipated, but by following out the above suggestions the damage from screw worms will be greatly lessened. Animal husbandmen will see in this emergency an opportunity to further better livestock practices in the territory. Unified effort on the part of animal husbandmen, veterinarians, and entomologists will serve to control a serious livestock pest and at the same time assist in the establishment of better livestock management practices.

Further information on the screw worm and its control may be obtained from the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture.

#### THE HOOSIER GOLD MEDAL COLT CLUB

The Hoosier Gold Medal Colt Club under the leadership of Mr. P. T. Brown of the Purdue University Extension Service has now completed its ninth year and enrollments for the tenth year have been made. As shown in the table below the project has had steady growth from the beginning and at present has the largest enrollment in its history. As a means of teaching on a large scale, the value of good breeding, liberal feeding and proper management in the production of high class draft colts, it has been a success. Mr. Brown has promised to prepare a comprehensive story on this activity at the close of the present year for use in this publication. Until then the statistics appended will have to suffice. --C.D. Lowe

Hoosier Gold Medal Colt Club

Year	No. of members	No. counties represented	No. colts entered	No. shows held
1926	96	28	137	13
1927	181	31	238	25
1928	226	32	303	23
1929	308	40	412	36
1930	229	31	312	12
1931	221	29	305	19
1932	315	36	441	23
1933	439	41	576	25
1934	614	36	792	29
1935	934	45	1,273	--

"DRIVE-IN" RECEIPTS OF LIVESTOCK  
1934

The following table showing the "drive-in" (nonrail receipts) of livestock in 1934 at 17 of the principal markets, also the percentage such receipts were of the total receipts, indicates the extent to which the motor truck, which accounts for about 90 percent of the "drive-ins," has become a factor in the transportation of this commodity to market. Total nonrail receipts at the listed markets made up 46.94 percent of the total receipts, as compared with 48.73 percent in 1933, the highest figure on record and 40.57 percent in 1932. The fact that all cattle and sheep purchased by the Government in the emergency drought relief program and shipped by the Federal Surplus Relief Corporation were transported by rail had the effect of decreasing the percentage of nonrail receipts in 1934. Low total hog receipts were also a factor.

<u>Market</u>	<u>Number head</u> <u>"drive-ins"</u>	<u>Percentage of</u> <u>total receipts</u>
Omaha	4,073,574	57.98
East St. Louis	3,250,553	59.92
Chicago	3,182,928	24.53
Sioux City	3,135,698	67.58
St. Paul	2,768,690	47.86
Indianapolis	2,501,650	90.54
St. Joseph	2,342,422	66.32
Kansas City	2,018,253	34.50
Cincinnati	1,184,297	62.47
Fort Worth	964,142	45.10
Milwaukee	718,636	49.72
Oklahoma City	688,387	60.29
Sioux Falls	665,278	89.35
Louisville	563,078	74.32
Wichita	552,431	50.20
Denver	515,410	11.25
Portland	154,013	26.65
Total	29,279,440	

Based on total reported receipts at the above markets the percentage of each class of livestock listed as "drive-ins" was as follows: Hogs, 66.79 percent; calves, 46.97 percent; cattle, 37.56 percent; and sheep, 25.38 percent.

More detailed information on this general subject may be obtained by writing the Livestock, Meats and Wool Division of the Bureau of Agricultural Economics, U.S. Department of Agriculture, Washington, D.C., and asking for mimeographed publication, "Driven-In Receipts of Livestock, 1934."

## COTTONSEED MEAL FOR WORK STOCK

Owing to the scarcity of feed grains and in view of recently conducted experimental work in the feeding of cottonseed meal to horses and mules, the Department of Agriculture believes that the facts brought out in the investigational work should have wide publicity in order that this available supplement may be more generally utilized for feeding work animals.

The studies made by the Texas Agricultural Experiment Station indicate that the precautions heretofore advocated in the feeding of cottonseed meal to horses and mules are not warranted, provided it is used in conjunction with pasture and proper roughages. Results of these tests indicated that animals receiving cottonseed meal in their ration were maintained in better flesh and vigor, shed their old coats of hair earlier in the spring; young mares developed faster and weighed more than those which did not receive this supplement.

The following suggestions should be observed -

Cottonseed meal should be given work stock gradually at first. It should be well mixed with other feeds, since some animals may not relish the meal.

Best results are obtained by limiting the amount of meal to between 1 and 2 pounds a day per 1,000 pounds live weight of animal.

Feeding with mixed or legume hay such as alfalfa, lespedeza, cow pea, or clover is particularly important when no pasture is available.

In addition to the 1 to 2 pounds of cottonseed meal the grain ration should contain about 5 pounds of grain such as corn, oats, grain sorghum, wheat, or barley per 1,000 pounds of live weight for idle work stock, 6 to 10 pounds of grain for animals doing medium hard work, and 10 to 13 pounds of grain for those doing heavy work.

From 11 to 13 pounds of roughage should be used with above grain rations and consist preferably of mixed hay, of about equal parts of grass and legume although combinations between straw, stover, cottonseed hulls, and straight legume hays may be substituted. If available, the use of good pasture will save considerably on both grain and roughage, especially if the animals are idle for several days at a time. Where hays are deficient in calcium the use of limestone or bone meal is advisable.

Full details of the Texas experiments are contained in Bulletin 492 of the Texas Agricultural Experiment Station.

--J. O. Williams,  
In Charge, Horse and Mule Investigations,  
U. S. Bureau of Animal Industry.

### LIVESTOCK NUMBERS DOWN

The number of livestock on farms was sharply reduced during 1934. For the first time on record the numbers of all the different species decreased in the same year. The percentage decreases by species were as follows: Horses, 1.1 percent; mules, 2.6 percent; all cattle 11.2 percent; sheep, 4.7 percent; hogs, 35.3 percent. When all the species are converted to terms of animal units, which allow for differences in size and feed requirements, the reduction in total animal units was about 13 percent.

This reduction was more than twice as large as in any other year of the 45 years of record, and the number of animal units on farms January 1, 1935, was the smallest in the present century.

--From The Agricultural Situation, March 1935.

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### PROGRESS IN BOVINE TUBERCULOSIS ERADICATION

Minnesota, on December 1, 1934, became the eighteenth State to be designated as a modified accredited area. Such designation means that the degree of tuberculous infection has been reduced to one-half percent or less of the cattle population of such areas as indicated by the tuberculin test. The other States which previously have been similarly designated, in the order of their accreditation are - North Carolina, Maine, Michigan, Indiana, Wisconsin, Ohio, Idaho, North Dakota, Nevada, New Hampshire, Utah, Kentucky, West Virginia, Washington, Illinois, Oregon, and Virginia. The District of Columbia also has the same status.

On February 1, 1935, 2,004 counties, or 63 percent of the total number of counties in the country had been made modified accredited areas, and a total of 42,781,219 cattle maintained in over 4,700,000 herds are under supervision by State and Federal authorities in this project.

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### STOCK WATER DEVELOPMENT IN OREGON

In connection with the drought relief program in Oregon it was possible to develop some 300 additional water holes or springs in the range territory. The construction of these water holes is of a permanent nature and will serve to benefit a large number of cattle and sheep, both on the national forests and the public domain. In addition to the springs developed, a total of 26 wells were sunk and 4 more are under construction. These wells are mostly in the southeastern part of the State and will supplement the development of the springs.

--H. A. Lindgren, Extension Animal Husbandman.

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### BANG'S DISEASE CONTROL PROGRAM

Cattle testing for Bang's disease (infectious abortion) under Federal and State supervision has been under way in 46 States since the regulations, based on the Jones-Connally Act, (through which 16 millions of dollars were made available for this work), were issued in July, 1934.

In the seven months' period ended February 1, 1935, agglutination blood tests were completed on 73,102 herds comprising 1,321,961 head of cattle. These tests revealed that 33,339 of such herds contained infection and that 183,919 head of the 799,385 included in the infected herds reacted to the blood test.

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### NEW GEORGIA SPECIALIST

R. E. Davis, formerly county agricultural agent in Walker County, Georgia, is taking the place of W. T. Bennett as State livestock specialist while Mr. Bennett is engaged in rural rehabilitation work with headquarters at Washington, D. C.

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### RECENT PUBLICATIONS

#### Federal

"Controlling Kidney Worms in Swine in the Southern States" - U.S.D.A. Leaflet No. 108.

"Direct Marketing of Hogs - Summary, Conclusion and Recommendations" - U.S.D.A. Bureau of Agricultural Economics. (Mimeographed Report, Jan. 14, 1935).

"Driven-In Receipts of Livestock, 1934" - U.S.D.A. Bureau of Agricultural Economics. (Mimeographed Report, Feb. 1935).

"Handbook of Economic Information on the Use of Farm Credit" - by Jas. L. Robinson, Farm Credit Administration, Washington, D.C.

"Horses and Mules Meet Need for Cheap Flexible Farm Power, Studies Show" - U.S.D.A. Separate No. 1422 from Yearbook of Agriculture, 1934.

"Livestock, Meats and Wool Market Statistics and Related Data, 1933" - A Statistical Handbook on Livestock (Mimeographed) - U.S.D.A. Bureau of Agricultural Economics.

"Market Classes and Grades of Stocker and Feeder Steers" - Brief descriptions of standards for grades of Stocker and Feeder steers - U.S.D.A. Bureau of Agricultural Economics.

"Meat Cutting and Pricing Methods" by Arthur T. Edinger - U.S.D.A. Bureau of Agricultural Economics (Mimeographed pamphlet, Feb. 1935).

"Pastures Offer Sound Means of Decreasing Feed and Food Surplus" - U.S.D.A. Separate No. 1423 from Yearbook of Agriculture, 1934.

"Pasturing Alfalfa with Cattle and Sheep in the Western United States," by Stephen H. Hastings - U.S.D.A. Bureau of Plant Industry. (Mimeographed pamphlet, Jan. 1935).

"Report of the Land Planning Committee (Part II)" - National Resources Board Report, by M. L. Wilson, et al. - for sale by Superintendent of Documents, Washington, D.C., price 35 cents.

"Stallion Enrollment and the Horse-Breeding Situation," by S. R. Speelman - U.S.D.A. Bureau of Animal Industry, Mimeographed Report, March, 1935.

"United States Livestock Report: Jan. 1, 1935" - U.S.D.A. Bureau of Agricultural Economics.

"Wool Yield and Fleece Density Can be Measured by a Simplified Method" - U.S.D.A. Separate No. 1426 from Yearbook of Agriculture, 1934.

#### State

"Permanent Pasture Studies on Upland Soils" by E. L. Mayton - Alabama Experiment Station Bulletin No. 243.

"Short Cuts to the Hog Market" by Geo. Henderson - Colorado Extension Service Bulletin No. 336-A.

"Fattening Idaho Range Cattle" by C. W. Hickman, et al - Idaho Agricultural Experiment Station Bulletin No. 209.

"Home Butchering in Iowa" - Iowa Extension Service Leaflet No. 3, Jan. 1935.

"The Place of Pasture in Iowa Farming" by Edgar B. Hurd and H. L. Thomas - Iowa Experiment Station Bulletin No. 323.

"Temporary Silos" by Earl W. Shulz and Byron T. Virtue -  
Iowa Extension Service Bulletin No. 202.

"Inexpensive Silos for Kansas" by Jas. W. Linn, et al -  
Kansas Extension Service Circular 94 (Revised).

"Machine-Dried Soybean Hay for Fattening Cattle" by M. G.  
Snell - Louisiana Experiment Station Bulletin No. 257.

"Controlling Parasites in Horses" by J. F. Witter - Maine  
Extension Service Bulletin No. 212.

"Farm Manure, Value and Care" by E. C. Sackrider - Michigan  
Extension Service Bulletin No. 71 (Revised).

"Liberal vs. Limited Rations for Draft Colts in Michigan" by  
R. S. Hudson - Michigan Experiment Station Special Bulletin No. 253.

"The Mare and Foal" by R. S. Hudson - Michigan Extension Ser-  
vice Bulletin No. 128.

"Livestock Trucking in Missouri" by F. L. Thomsen and W. R.  
Fankhanel - Missouri Experiment Station Bulletin No. 317.

"The Taylor Grazing Act in Nevada" - compiled by Thomas E.  
Buckman, Nevada Extension Service Bulletin No. 76.

"The Reproduction of Farm Animals" by S. A. Asdell - New York  
Extension Service Bulletin No. 305.

"Better Pastures for Ohio Livestock" by D. R. Dodd and R. M.  
Salter - Ohio Extension Service Bulletin No. 154.

"The Effect of the Ration on Wool Growth and on Certain Wool  
Characteristics" by A. E. Darlow, et al - Oklahoma Experiment Station  
Bulletin No. 220.

"Better Sheep Management on Wisconsin Farms" by James J. Lacey -  
Wisconsin Extension Service Circular No. 270.

#### Commercial

"Care, Feed and Management of Horses and Mules" - Horse and  
Mule Association of America, Chicago, Ill. (Leaflet No. 217).

"Judging Horses and Mules" - Horse and Mule Association of  
America, Chicago, Ill. (Book 219).

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